1) What are the semantic requirements for information exchange and interface protocol between the runtime system and operating system to support dynamic adaptive execution including management of faults and energy optimization?

2) What are key considerations for and against global address space versus distributed memory in support of exascale computing?

3) What key elements of a runtime system for exascale will demand co-design with computer architecture advances to be successful?

4) How can prioritization of tasks be determined for optimal scheduling? Does it require user intervention or can it be automated?

5) Programming interfaces can treat communication as an explicit control visible to the programmer, entirely implicit determined by operation semantics and object addresses, or some mix of the two. What are the factors driving exascale that will influence this choice?